A new technique in double-bundle anterior cruciate ligament reconstruction: some concerns

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Received: 11 April 2012 / Accepted: 9 May 2012 / Published online: 29 May 2012
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We read the article “A new technique in double-bundle anterior cruciate ligament reconstruction” by Prado et al. [1] with great interest. We congratulate the authors for the research, but would like to draw the attention of the authors and readers to the following:

1. The two femoral tunnels were 6 mm in diameter, with a divergence of 6 mm being observed via arthroscopy, but Fig. 5 (in [1]) shows that there is minimal bone bridge between the two femoral tunnels. Two tunnels, in close relation to each other, could cut through the metaphysis, leading to a higher fracture risk [2].
2. In the above-mentioned method the absence of femoral implant-fixation could lead to increased tunnel widening, but greater tunnel widening was observed in the tibial side, where implant fixation was used bimodally and where the pull-out forces were the most important. One of the reasons for tibial tunnel widening may be because it was not anatomic on the tibial side. The anatomic tunnel placement group shows less tunnel enlargement.
3. The authors labelled the new technique for anatomic double bundle ACL reconstruction. Anatomic ACL reconstruction must be defined as the reconstruction in which all four ends of the two tendon grafts are grafted at the centre of the anatomical attachment of the anteromedial (AM) and posterolateral (PL) bundles not only on the femur, but also on the tibia, because only such a procedure allows for the reconstruction of two bundles in an anatomical orientation [3]. Although femoral tunnels may be double, there was a single tibial tunnel which is inserted at the same site, so it cannot be labelled as anatomic ACL reconstruction. Is there any evidence that a single tibial tunnel with double bundles in it can be labelled as anatomic ACL reconstruction?
4. Traditionally, the ACL has been divided into two major parts: anteromedial and posterolateral bundles. Although the former is relatively consistent in tension throughout the range of motion, the latter becomes taut in extension and slack in flexion. In the author's technique the tension will be distributed equally between the two bundles whether the knee is in flexion or extension and may not mimic the biomechanics of the knee. The AM and PL grafts should be tensioned separately, with the AM in approximately 45° of flexion, and the PL graft in full extension, which is not possible with the described technique.
5. Meuffels et al. concluded that the resistance to elongation in the double-tibial tunnel group is higher than that in the single-tibial tunnel group. This could have a clinical advantage in favour of the double-tunnel reconstruction, because this stiffness more closely resembles the stiffness of the intact ACL [4].

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6. The graft loop at the femoral tunnels may lead to graft movement within the tunnel. Graft tunnel motion may impair early graft incorporation and may lead to osteoclast-mediated bone resorption, contributing to tunnel widening [5]. The surgical technique lacks clarity in various aspects. How the graft was looped from the posterolateral to the anteromedial femoral tunnel is not clear. How is the graft inserted into the anteromedial femoral tunnel once it is taken out of the posterolateral femoral tunnel?
7. Although the authors described two femoral tunnels, in the abstract section two femoral sockets are mentioned, which may confuse the readers.

The authors described a good technique but we would advise the readers to use this technique with caution. Moreover, because of its demanding technical level, it should only be done by surgeons with higher level arthroscopic surgical skills.

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